

Archetype Changes and the Use of Technology In The Field Of Marketing Research And Consumer Study

Dr. J. N. V. Raghuram¹, K Keerthi Jain^{*2}, Lavanya A^{*3}

Submitted: 22/07/2022

Accepted: 25/09/2022

Abstract: Marketing in the current era has become very much critical and understanding the human brain and its behavior is also very critical. However, without an understanding of behavior serving the consumer with the product is difficult. However, every company somehow managed to get the data about human behavior through some surveys and then make the analysis and come out with a strategy. But as the data is increasing and the behavior of consumers is also becoming unpredictable, studying the minute issues and reaching the consumer is difficult. In such cases, the only option left for the marketers is to depend on some intelligence that can be used to solve the issues and come up with solutions. Therefore, artificial intelligence can replace human intelligence in cracking the problem and of course again use human intelligence to formulate the strategies to reach the consumer. This paper discusses how the and other technological tools are playing a major role in the marketing context and how critically they are used in solving the issues faced by the consumers in very diversified situations and finally getting the best for their satisfaction.

Keywords: Consumer Study, Artificial Intelligent, Chat bots, Algorithms, Human intelligence.

1. Introduction

In this changing world, evolutions of new markets are raising and the consumers are changing vigorously. The needs of the consumers are changing very fast and thus leading to new products and many innovations are coming into existence. However, the changing needs are also making the consumer very dynamic, wherein the study of the consumer is also becoming very critical. Consumer psychology and behavioural studies have seen the emergence of new models and concepts. The research activities have taken the help of Technology to the core in understanding the consumer. The process of changing technologies makes the researchers understand new concepts and get trained in the new technology to understand, of course, which in turn may be expensive. However many companies and research organizations are even getting compromised with the cost, as the only solution to study the consumer critically and serve him the best is always the use of technology. Neuro sciences are the concept of understanding the neural structure of the human brain and studying the hidden issues in the human brain. As one of the researchers mentions that most of the decisions consumers make are based on hidden perceptions and not on rational thinking. The hidden perception in other words known as subliminal perception is a very important aspect to study and it cannot be studied by just looking at the consumer or observing his purchase pattern. Therefore, researchers started understanding the consumers by studying every minute of the consumer's

lifestyle and how? The answer is the use of technology.

2. Method

This article is purely based on the information taken from the Literature review and conceptual understanding of AI and AI-related technologies influencing the field of consumer behavior and the marketing study.

3. Discussion

The process of marketing the products has changed when compared to the traditional systems. In the current scenario where the dominance of technology is gaining, most companies are dependent on new technologies and sciences to understand and market their product to customers.

In the field of information search, the customer has replaced many options followed by new technologies and methods. The fields of natural language processing, machine language, conversation interface, and deep learning process have enabled new methods in giving crisp and accurate information to the customers and vice versa helping the companies to learn what exact information is required by the customer. Virtual assistance became the need of the day and of course, they are intelligent and useful.

In an article, the author worked on the influence of point-of-purchase factors and many retailing technologies on consumer shopping behavior. His research has worked on the shopping experiences in both online and in-store environments. The research emphasized the recent innovations happened in customer interface technologies. However, in the current situation, new technologies need to develop in enhancing the shopping experience, and applications should be developed for tailoring to the needs of the segments and product categories Bernard Marr.

¹ VIT Business School, Vellore Institute of Technology, Vellore, Tamil Nadu.
ORCID ID: 0000-0003-3976-0202

² VIT Business School, Vellore Institute of Technology, Vellore, Tamil Nadu.
ORCID ID: 0000-0001-6553-8088

³ VIT Business School, Vellore Institute of Technology, Vellore, Tamil Nadu.
ORCID ID: 0000-0002-7717-7125

* Corresponding Author Email: keerthijain@live.com

(2021, July 13).

There was a time when many researchers thought about how the technologies will change the retailing segment with virtual marketing and virtual shopping playing a major role. However, time has changed many phases of marketing and even the information communication process also. In 1997 Raymond Burke explained the future of virtual shopping and the impact of the Internet on marketing strategies. In the early 1990s, many researchers predicted that the internet would only be an extra value advantage to the marketers in their promotions, selling process, and distribution of the products. However, analyzed that because of the unique advantage or characteristics, later in the future internet becomes a more viable and attractive substitute in the business of the channel members. In continuation to their predictions today in every critical aspect of the market analysis and consumer behavior, the use of the Internet and machine languages are playing a major role Berthon, P. R., & Pitt, L. F. (2018). In the current situation, not just the use of the Internet in retailing but the use of Machine languages and AI has become the need for a better understanding of the consumers.

The changing consumers with the different demographic patterns are in the era of getting exposed to the newer technologies and devices for experiencing new marketing patterns. In this fashion, the need for different shopping alternatives the retail experience marketing has gained the need, thus the evolution of new retail chains has evolved and companies started using electronic orders and app-based purchases. On the other side, of course, even the study of consumers is gained a lot of importance and the use of various machine languages and neuro-marketing and neurosciences became the need of the study Burke, R. R. (1997). Of course, though virtual shopping increased, but still even in this era physical shopping is more liked by the consumer and it more enjoyable, but customer analysis and behavior studies require more technology usage for accurate information gathering and analysis. In the last few years, in marketing and particularly in the retail segment the importance of consumer study is becoming very critical in making consumer satisfaction. Thus the use of Neuro marketing concepts and study of consumer psychology is the only important issue for research. However, the in-depth study of consumer behavior and the study formulating the marketing strategies for products sale is not an easy task, thus the use of technology plays a major role. In the process of customer satisfaction Internet has become one of the important tools to get the customer connected with the marketer and study the behavior. Huge data is generated by various devices and thus big data is used for analysis. The use of Artificial intelligence and other machine languages are used to analyze the consumer. The Internet of things is another tool used to understand the consumer critically Burke, R. R. (2002). The future technologies rule the market and of course save the consumer time, money, and energy in many aspects. Well, these technologies also provide a more efficient process of the customer data and help to develop a better customer development. Even the search process has become very easy for the customer through voice assistants and thus use of AI to understand the consumer pulse more vigorously. Most of the time the companies fail in creating a better pain reliever to address the pain of the customer and this happens when they fail in proper segmenting and proper profiling of the markets. However, technology can be better used to profile the segment on the behavioral aspects and then understand the attitudes and responses of the customers towards the market trend. Thus,

technology use makes us understand the occasions, cultures, and perceptions of the customers and how they plan and thus help the companies how to predict and forecast what to produce and how much to produce. The algorithm-based studies are very much useful in looking at various variables and similarities.

Customer service is another aspect that companies need to emphasize more to deliver the best. However, in this technological era, many new tools have come across to study the customer and serve the customer better. In this process, the use of Chat bots is playing a role in improving the customer service and at the same time putting a check on the budget spent also. Chat bots are integrated with websites and applications to get in tune with the customer and collect the data and even stored it to make tailor-made strategies. Chat bots are better than humans at collecting the data and even are linked with Social media platforms. There is a substantial growth in the usage of Chat bots and in the coming, six to seven years of time bots play a major role in customer service. They enable and increase the consumer's emotions and experience while increasing their involvement.

They became smarter and more cognitive in the space of algorithmic economy. Technologies get so much induced into every business and human life and it creates a convergence of dehumanization of business and humanization of Technology. The interactions generally happen between human to humans, but now technology helps in making the interaction between Machine to Machine (M2M) and Machine to Human (M2H) or Human to Machine (H2M).

Today in the current scenario the future of marketing practices will completely change with the influence of technology like AI, the Internet of things, etc. would create hyper-targeting automation of shopping experience, a lot of exchange of sales data, CRM concepts, personalized ads, and content developments. In specific, chat bots can be used for personal assistance and more customized activities Digital Revolutions in public finance. (2017). the changing world and the markets require more advanced tools to study the dynamic customer and serve him better. In this era, human conversations are converted into textual methods and understand the intentions of the consumers and later try to send the response as per the company's capabilities. This is how the Chat bots are used and they are something like a complex interface between the human and the machine languages and enable a better relationship between humans and machines. This relationship leads to a better understanding of the consumer and comes out with a solution for the customer's problems. The use of Chat bots in social media makes the discussions more elaborate and helps in creating specific content. Proper use of Chat bots will drive the customers into a proper purchase process and also helps the consumer use their cognitive effort and time efficiently for further stages of Transactions. According to estimates, more than 67% of consumers worldwide used a chat bot for customer support in the past year and 40% do not care whether a chat bot or a real human helps them, as long as they are getting the help they need.

Chat bots integrate with social media, gathering data about every single person with whom they interact. Based on customer purchase history and patterns the chat bots can help the companies in creating more interactive solutions for the consumers and this is possible with the help of AI, thus leading to more personalized solutions. Today in this digital era many companies are using videos and audio clips to reach the consumer

and make an impact on the consumer. Through video clips, a marketer can showcase the emotions and thus create an impact. However once the video is over it is done, but the chat bots can catch the consumer's attention and understand the intentions thus allowing them to send the relevant information for better marketing of the product, brand, or service. As mostly these chat bots are used in the social media has a very wide range of reach to the customer. With such a huge reach chat bots can even be used for gathering feedback from different sources of customers based. However, chat bots with various machine tools should be used for analyzing and converting the feedback.

In the changing marketing trends for effective predictive analysis and deeper consumer behavior, AI plays a very critical role. Currently, the world is at a standstill situation to the impact of the Coronavirus, the market has come down and no product is sold. However, a day has to come when the market again regains the situation and back into the business. But in such cases, AI helps the marketers to understand the consumer very critically in knowing how the consumer spends the lockdown period. The conversational interfaces should help the companies to know the interests of the consumers. Likewise, many technology-based interfaces between the market and the consumers lead to many innovations helping in understanding the consumers. These innovations all carry similar characteristics of hyper-personalization, efficient spending, scalable experiences, and deep insights. The impact of technology not only has its impact on the B2C markets however it also creates an impact on B2B markets. Value creation in B2B is also a critical factor for a successful business scenario. In such situations increase in digitalization and emerging information and communication technologies are playing a role in the value creation of any product manufactured. Data collection is one important aspect and on the other side the data interpretation and managing the knowledge is another aspect, thus the era of technology inference helps the companies. The extent to which social media has penetrated has helped in huge data collection and of course, the rise of the Internet of Things also plays a major role Leite, E., & Bengtson, A. (2018).

A clearer intelligence concerning business can be defined as an ability to perceive and transform tons of data into information and knowledge and use this for goal orientation and finally help the customer in getting the best solution for the problem.

Currently in this pandemic situation the whole nation as well the world is in crisis and every business is down. No company has any sales and no product is reaching the consumer. However, after this situation, every company needs to put a lot of effort into promoting the products aggressively to the market to reach the consumer. Once the markets are open all the products stand as new in front of the consumers, thus may not display loyalty and brand recall. During this time the consumer is spending most of the time on the Internet and browsing much information. Thus, AI can help marketers to understand this data related to consumers' web browsing data, social media rankings, transaction data, etc. as an input for a better computation and improving the machine language techniques to run the computations for a better consumer solution. In the process of using AI, the data collected from the consumers or to satisfy the consumers by giving them a better solution is making effective problem solving and equally giving proper reasoning. However, the logical inference and reasoning by the human brain may lead to some biased or ineffective solutions, thus Machine languages

play a critical role. AI systems are also thought of as inference engines. They apply rules or laws to the data available to deduce information Ottawa, M. (2021). The use of AI systems also helps the companies to understand the current situation and based on the data can also predict the future markets. In this pandemic situation and later after the revival of the markets the companies can use the AI and know the consumers pretty well in readdressing the consumer after a break in the market sales. It is not the technology itself, though, that will make the difference but rather the knowledge and creativity of the humans who use it Paschen, J. et al (2019). AI can exceed human intelligence not only in speed but also in detecting the patterns in the data collected. The markets and the behavior of the consumer completely change with these types of crises. In such cases detecting the patterns of consumer behavior is critical and is a difficult issue. During this COVID 19 crisis companies can do a lot of online brand campaigning and reach the consumer about the brands. However, the data retrieved back on these campaigns through any social media platforms can be analyzed with the help of AI later reach the consumer with the right product. As mentioned earlier in this article even Chat bots are other important tools for a better conversation, which in turn is based on AI. Another form of AI use is image generation, which is something opposite to image recognition. With some given data the AI system can even generate the output. Probably this can be used by the marketers to create impressive images or photographs for the consumers, based on the information they give or the data they process. This can be better used in the advertising industry to make better background and closure for the consumer.

The whole process of marketing and customer satisfaction depends on the interest of the customers. However, without proper information about customers, we cannot use any of the above tools to even make any strategy using the machine. Hence customer knowledge is another important aspect of making the AI system more efficient. AI can use any type of data related to the customer like psychographic, demographic, browsing behavior, etc., and use machine language and predictive algorithms and make an analysis that would build a strong customer relationship. AI can also be used in every stage of the Business 2 Business scenario for a longer customer relationship and even for better customer prospecting and sales Robson, K., Plangger, K., Kietzmann, J. H., McCarthy, I., & Pitt, L. (2016). There are many predictive models where the prospects or the potential customers can be identified and also study the leads properly and finally convert the leads into actual buyers. Another important issue that the consumers face through social media is the impact of fake information, which in turn creates confusion. However, AI systems use machine algorithms and natural language processing to identify the fake information and help the consumers in not get exposed to wrong information. In the current situation with the increase in technology, the adoption of data-intensive machine learning methods will lead to more evidence-based decision-making across marketing and sales Syam, N., & Sharma, A. (2018).

AI is also used in framing various marketing strategies to make the product reach a better way to the consumer. As marketing always talks about the achieving cost leadership and differentiation which make the product display the USP and make a change in the competition. In such a scenario the use of AI is also helping companies to understand the issues which can make the company reach the cost leadership and give a product at a

very low price. As per Porter's 3 laws companies in today's competition should either make a very low-priced product with better quality or if companies cannot get the low-price product then should make a product with a lot of differentiation so that it stands unique from the other competitor's products. However, in a very strong competition, it is sometimes very difficult to differentiate and even make any changes in the cost of the product also. In such a case the companies need to check the market which is mostly left out by all the major players in the competition. This is what we call the Niche market. Hence various techniques are in use to make the best low-cost designs and also make unique products. The concept of Lean manufacturing and lean start-ups have emerged to control the wastage and also to reduce the overall cost to the maximum. Hence in every place of production and marketing, the concepts of AI and other technologies can be used to make the best for the consumers. As the human brain works on learning, explanation of the information, and finally arrives with a solution. In regards to this AI is a process where the data is collected and turned into some algorithms and finally using some software languages solution is obtained by a computer. Marketing strategy is an issue where the companies try to make different ways to sell the products to the consumers based on cost leadership, differentiation, or Niche markets. Therefore, one of the researches done by Turunen, T., Eloranta, V., & Hakanen, E. (2018) has proved that with the use of AI better quality products can be manufactured with very less pricing. At the same time, they also worked on how the use of AI will increase the better positioning of the product and thus the visibility to the customer through proper advertisements. AI also helps many companies in creating various promotional strategies and thus designs various schemes and discounts for a better reach of the customers.

AI is a subfield of computer science and is used in various aspects of studying visual perceptions, speech recognition, and decision-making. Machine learning is one way of achieving AI. It works on many algorithms with different strengths and weaknesses. Now in the field of AI breakthroughs are happening with the concepts of Deep Learning. One interesting observation in the field of consumer behavior is how the consumers look at the products and how they keep the information in their minds. The everyday consumer gets exposed to several products, brands, colors, and logos, but not all very few they remember and few of course they ignore, and a few they forget. If we observe small kids who even don't know to walk and talk also remember so many issues only by some observations. That means the human brain keeps some patterns as part of the search process. The deep learning process with the help of artificial neural networks is used for pattern recognition and using for the further consumer analysis process. Other popular algorithms are Bayesian networks, Decision Tree, K-Means Clustering, and Support vector machines and of course, each of these has its strengths and weakness. Deep learning is a subset of machine learning, and machine learning is a subset of AI, which is an umbrella term for any computer program building smart algorithms. In the field of medical diagnostics, the use of AI has gone to the peak where the AI algorithms are predicting the heart images and DNA mutation and help treat heart attacks and cancer patients Valacich, J. S., & Brown, S. A. (2018).

The study of consumer behavior, which is another important task where many companies invest a huge amount in knowing the consumer psychology is very critical. When we investigate a

consumer, we try to emphasize two human abilities or traits. One is the cognitive phase and the other emotional. However, the cognitive part is the one that is very dynamic and keeps the consumer changing as it is related to the consumer's brain and mental understandings. This may change as and when the consumer gets exposed to a lot of information, however, the other component is emotional and it cannot be attached to any machines to study. This in fact cannot be rational; however, the earlier can be attached to machines and can be programmed based on some logic and rationale, since it is linked with cognition. However, some of the researchers indicate that there may be some aversions to the algorithms used in finding the human nature abilities. This is an issue that sometimes becomes a hurdle in using the technology for research, as some don't have faith in the use of algorithms for emotional studies. However, depending on the age factors and the environment the consumer develops leads to the aversion or appreciation of technology use or the machine used for data collection and interpretations. But, truly this is the need of the day, and technology use only solves the issues of large data collection and solutions for the same. Many companies and organizations are using AI and Big Data to the maximum to collect and utilize the information to understand the consumers. In current cutthroat competition, it is very much important for the companies to analyze the responses to build long-term relationships with the customers. Some research has proved various age groups of consumers look at their decision-making process which was more dependent on their cognition. However so, consumers are always there who depend on the AI tools for various decisions making Łapińska, M. (2019). Some companies try to give more customized products on different occasions to please the consumers and delight them and this is possible through the use of Machine learning techniques.

With the rush of media, the consumer has several ways to get so much information, which is another way to make the consumer raise their expectations on how the brands solve their problems. However, these expectations of consumers make the organizations act very fast to create a strategic plan and investments to satisfy the need of the consumers. In such a dynamic environment AI plays an important role in the critical success of the organization Walters, M., & Bekker, J. (2017).

With so many advantages of AI and other technologies for the consumers and the companies, there is a high need for everyone to get the awareness of these advantages and how to implement these technological changes for an efficient marketing strategies formulation. Therefore, the other important need of the market is the awareness of AI and other tools and the usage of those in marketing

4. Conclusion

In this changing marketing situation, consumers' needs and preferences are changing very fast, and there is a need for companies to study the consumers in depth. The hidden needs and subliminal perceptions are important to study critically and based on that the predictive analysis should be done to satisfy the consumer. In this scenario, the impact of AI and AI-related tools play a very important role in the field of marketing and the study of consumers

5. Future Scope

The future scope of this analysis is that the use of technology can

be understood in a better way and every other aspect of studying and understanding the consumer should be studied. This article also gives a path to further emphasize more on the other new technologies evolving and their impact on marketing. This article also will lead away towards the other developments in the use of AI and Chat bots with regard to marketing.

6. References and Footnotes

6.1. References

- [1] Bernard Marr. (2021, July 13). The key definitions of Artificial Intelligence (AI) that explain its importance. Bernard Marr. Retrieved July 6, 2022, from <https://bernardmarr.com/the-key-definitions-of-artificial-intelligence-ai-that-explain-its-importance/>
- [2] Berthon, P. R., & Pitt, L. F. (2018). Brands, truthiness and post-fact. *Journal of Macromarketing*, 38(2), 218–227. <https://doi.org/10.1177/0276146718755869>
- [3] Burke, R. R. (1997). Do you see what I see? the future of virtual shopping. *Journal of the Academy of Marketing Science*, 25(4), 352–360. <https://doi.org/10.1177/0092070397254007>
- [4] Burke, R. R. (2002). Technology and the customer interface: What consumers want in the physical and Virtual Store. *Journal of the Academy of Marketing Science*, 30(4), 411–432. <https://doi.org/10.1177/009207002236914>
- [5] Digital Revolutions in public finance. (2017). <https://doi.org/10.5089/9781484315224.071>
- [6] Dorr, B. J. (2001, July 30). Review of Natural Language Processing in R.A. Wilson and F.C. Keil (eds.), the MIT Encyclopedia of the cognitive sciences. *Artificial Intelligence*. Retrieved July 6, 2022, from <https://www.sciencedirect.com/science/article/pii/S0004370201000960>
- [7] Agrawal, A. ., and G. . Tiwari. “Design Simulation and Assessment of Computer Based Cancer Diagnosis Accuracy Using ART 1.0 Algorithm”. *International Journal on Recent and Innovation Trends in Computing and Communication*, vol. 10, no. 3, Apr. 2022, pp. 25-34, doi:10.17762/ijritcc.v10i3.5522.
- [8] Excerpt: Digital Revolutions in public finance. (2017). <https://doi.org/10.5089/9781484323823.073>
- [9] Leite, E., & Bengtson, A. (2018). A business network view on value creation and capture in public-private cooperation. *Industrial Marketing Management*, 73, 181–192. <https://doi.org/10.1016/j.indmarman.2018.02.010>
- [10] Osmonbekov, T., & Johnston, W. J. (2018). Adoption of the internet of things technologies in business procurement: Impact on organizational buying behavior. *Journal of Business & Industrial Marketing*, 33(6), 781–791. <https://doi.org/10.1108/jbim-10-2015-0190>
- [11] Ottawa, M. (2021). Leveraging customer insights with 5G. *The Machine Age of Customer Insight*, 65–76. <https://doi.org/10.1108/978-1-83909-694-520211007>
- [12] Paschen, J., Kietzmann, J., & Kietzmann, T. C. (2019). Artificial Intelligence (AI) and its implications for market knowledge in B2B marketing. *Journal of Business & Industrial Marketing*, 34(7), 1410–1419. <https://doi.org/10.1108/jbim-10-2018-0295>
- [13] Robson, K., Plangger, K., Kietzmann, J. H., McCarthy, I., & Pitt, L. (2016). Game on: Engaging customers and employees through gamification. *Business Horizons*, 59(1), 29–36. <https://doi.org/10.1016/j.bushor.2015.08.002>
- [14] Syam, N., & Sharma, A. (2018). Waiting for a sales renaissance in the Fourth Industrial Revolution: Machine Learning and Artificial Intelligence in sales research and Practice. *Industrial Marketing Management*, 69, 135–146. <https://doi.org/10.1016/j.indmarman.2017.12.019>
- [15] Turunen, T., Eloranta, V., & Hakanen, E. (2018). Contemporary Perspectives on the strategic role of information in internet of things-driven industrial services. *Journal of Business & Industrial*

Marketing, 33(6), 837–845. <https://doi.org/10.1108/jbim-06-2017-0153>

- [16] Baes, A. M. M. ., Adoptante, A. J. M. ., Catilo, J. C. A. ., Lucero, P. K. L. ., Peralta, J. F. P., & de Ocampo, A. L. P. (2022). A Novel Screening Tool System for Depressive Disorders using Social Media and Artificial Neural Network. *International Journal of Intelligent Systems and Applications in Engineering*, 10(1), 116–121. <https://doi.org/10.18201/ijisae.2022.274>
- [17] Valacich, J. S., & Brown, S. A. (2018). A comment on “is information systems a science?” *Communications of the Association for Information Systems*, 211–216. <https://doi.org/10.17705/1cais.04314>
- [18] Linda R. Musser. (2020). Older Engineering Books are Open Educational Resources. *Journal of Online Engineering Education*, 11(2), 08–10. Retrieved from <http://onlineengineeringeducation.com/index.php/joe/article/view/41>
- [19] Walters, M., & Bekker, J. (2017). Customer super-profiling demonstrator to enable efficient targeting in marketing campaigns. *South African Journal of Industrial Engineering*, 28(3). <https://doi.org/10.7166/28-3-1846>
- [20] Łapińska, M. (2019). Martech — Marketing Technology A Rozwój platform SAAS do Automatytacji Marketingu. *Marketing i Rynek*, 2019(3), 17–24. <https://doi.org/10.33226/1231-7853.2019.3.2>

Author contributions

Dr. J. N. V. Raghuram1: Conceptualization, Methodology.

K Keerthi Jain2: Writing-Original draft preparation.

Lavanya A3: Visualization, Investigation, Writing-Reviewing and Editing.

Conflicts of interest

The authors declare no conflicts of interest.